


Office of Environment, Safety and Health	<b>Identification, Prioritization, and Approval of Nuclear Safety Research</b>	 Approved _____ Date _____
<b>EH-3x</b>	<b>Standard Procedure</b>	EH-3x-SP-01 Rev 7

## 1. PURPOSE

This Standard Procedure specifies how the Office of Environment, Safety and Health (EH) solicits, identifies, and prioritizes proposals for nuclear safety research, and how the proposals become finalized and approved in an annual nuclear safety research plan.

## 2. APPLICABILITY

This Standard Procedure applies to all Office of Environment, Safety and Health personnel involved in developing or approving nuclear safety research. This EH-Wide Standard Procedure is maintained by the Deputy Assistant Secretary for Corporate Performance Assessment.

This Standard Procedure is a living document that will be revised as conditions change, and as experience shows ways to improve it. EH welcomes constructive comments on this procedure.

## 3. OBJECTIVES

The Office of Environment, Safety and Health (EH) is responsible for the Department's corporate nuclear safety research function. Within EH, the Office of Nuclear Safety Research (ONSR) must:

- Integrate for DOE nuclear safety research being performed inside and outside of DOE.
- Prepare an Annual DOE Nuclear Safety Research Plan
- Obtain independent, informed advice on both the activities of the Office of Nuclear Safety Research as well as the prioritization of nuclear safety research projects.
- Plan, contract, direct or conduct nuclear safety analysis and testing.
- Disseminate the results of nuclear safety research to DOE nuclear facility operators, designers, and policy-makers to effect improvement in margins of safety.
- Publish results.
- Provide robust program management of the nuclear safety research function.

The objective of this Standard Procedure is to specify how the EH Office of Nuclear Safety Research, with help from others, will identify, prioritize and approve nuclear safety research.

## 4. RESPONSIBILITIES

### 4.1. Research program managers within the Office of Nuclear Safety Research

- Establish and maintain points of contact for nuclear safety research within the line organizations, the NA and ESE Central Technical Authorities, DOE technical committees, EFCOG, NLIC, DNFSB, the NRC and other federal and international agencies.

- Solicit points of contacts for nuclear safety research needs and suggested research projects, plus information on nuclear safety research conducted by organizations and agencies outside of the Office of Nuclear Safety Research.
- Participate in an initial prioritization of suggested research projects.
- Develop informational scoping packages for each identified safety research issue/need/problem.
- Develop parts of the annual nuclear safety research plan for specific projects.

4.2. Director of the Office of Nuclear Safety Research

- Directs nuclear safety research solicitation, prioritization and the development of informational scoping packages.
- Establishes and maintains a Nuclear Safety Research Review Panel.
- Directs the development of the annual nuclear safety research plan.
- Facilitates reviews, concurrences, approvals and resolution of differences in the process of identifying and prioritizing nuclear safety research.
- Routinely communicates to and solicits feedback from external stakeholders (e.g., the DNFSB).

4.3. The Office of Analytical Studies (EH-32) identifies generic nuclear safety research needs that come from its routine analysis of operating experience, and forwards these to the Office of Nuclear Safety Research.

4.4. The Office of Authorization Basis (EH-23) identifies generic nuclear safety research needs that come from its routine analysis of Unreviewed Safety Questions and safety analysis reports, and forwards these to the Office of Nuclear Safety Research.

4.5. Other EH offices identify nuclear safety needs, as appropriate, and forward these to the Office of Nuclear Safety Research.

4.6. EH Deputy Assistant Secretary (DAS) for Corporate Performance Assessment (EH-3)

- Reviews and approves nuclear safety research informational packages and prioritizations made by both the Office of Nuclear Safety Research staff and the Nuclear Safety Research Committee/Panel, resolves any differences in priority rankings, and provides any additional direction.
- Concurs on the annual nuclear safety research plan, and interfaces with the NA and ESE Central Technical Authorities to obtain their concurrence on the plan.

4.7. NA and ESE Central Technical Authorities (CTAs)

- Participate in the identification of nuclear safety research needs and suggest potential research projects.
- Concur on the annual nuclear safety research plan.

4.8. The Assistant Secretary for the Office of Environment, Safety and Health approves the annual nuclear safety research plan, including the proposed budget for the research.

## 5. REQUIREMENTS

### **5.1. Identification of Nuclear Research Safety Needs and Potential Research Topics**

- 5.1.1. The Office of Nuclear Safety Research will establish points of contacts within the two Central Technical Authorities and with nuclear line organizations (NA, EM, SC, NE and RW) and periodically solicit these contacts for generic nuclear safety needs and suggestions for potential research topics. These generic needs must be applicable to several operations within the Department, rather than limited to a single or few specific projects within the line organizations.
- 5.1.2. Through its contacts with the nuclear line organizations, the Office of Nuclear Safety Research will also identify, compile and catalog nuclear safety research projects planned or already completed by the line organizations that could be used directly or modified for generic application.
- 5.1.3. The Office of Nuclear Safety Research will establish contacts with internal Departmental expert organizations, such as the Criticality Safety Support Group and the Fire Safety Committee, and will periodically solicit these contacts for generic nuclear safety needs and suggestions for potential research topics.
- 5.1.4. The Office of Nuclear Safety Research will establish contacts with contractor groups, such as EFCOG (Energy Facilities Contractors Group) and NLIC (National Laboratory Improvement Council), and will periodically solicit these contacts for generic nuclear safety needs and suggestions for potential research topics.
- 5.1.5. The Office of Nuclear Safety Research will establish contact with the DNFSB and routinely solicit feedback on issues, plans and products.
- 5.1.6. The Office of Nuclear Safety Research will solicit information on nuclear safety research planned or being conducted by others such as the US Nuclear Regulatory Commission and other federal agencies, international agencies, the Electric Power Research Institute (EPRI), and the Institute of Nuclear Power Operations (INPO). The office will periodically solicit these contacts for generic nuclear safety needs and suggestions for potential research topics.
- 5.1.7. In its systematic reviews of operating experience, the Office of Analytical Studies (EH-32) will identify generic nuclear safety research needs and relay these to the Office of Nuclear Safety Research.
- 5.1.8. In its periodic review of Unreviewed Safety Questions (USQs) and safety analysis reports, the Office of Authorization Basis (EH-23) will identify generic nuclear safety research needs and relay these needs to the Office of Nuclear Safety Research.
- 5.1.9. From all the input gathered above, the Office of Nuclear Safety Research will prepare lists of identified nuclear safety needs and proposed projects, including rough estimates of costs and schedules.

## 5.2. Prioritization of Nuclear Safety Research Projects

5.2.1. In finalizing lists of potential research projects for prioritization, the following criteria will be used to cull out non-applicable projects:

- Research topics must be limited to those addressing nuclear safety for DOE operations and facilities.
- The topics must have a demonstrated potential to:
  - improve nuclear safety practices (through applied research and development), or
  - reduce uncertainties in current nuclear safety analyses, or
  - identify or clarify new hazards, accident scenarios and risks, and
  - justify changes to practices and directives that will better address the new risk perspectives gained.
- Research must not repeat previous or ongoing research done by DOE line organizations or other agencies, unless there is a strong demonstrated need to validate, verify or extend such research.

5.2.2. The prioritization process for proposed nuclear safety research is intended to select and approve a set of research projects for each upcoming fiscal year, given expressed needs and total annual budgets for the research. The goal is to produce a prioritized and well-vetted list of projects that can be further developed into an annual nuclear safety research plan. This process will take several steps, as outlined below. Prioritization will be based on both the potential applicability of the research results plus the likely success of the projects. The following criteria will be used in the prioritization process:

- Preference will be given toward nuclear safety research projects that address:
  - current or near-future operations
  - potential high-consequence (low-probability) nuclear accidents
  - generic issues that impact many of DOE's nuclear operations and facilities
  - technical questions that can be addressed by testing or analysisExceptions to the above could be made for certain high-profile nuclear safety issues demanding immediate attention.
- Preference will be given to nuclear safety research projects that have:
  - low potential cost/benefit ratios
  - high likelihood of successful completion (demonstrated by success of previous similar work, expertise and experience of researchers, etc.)
  - capability of producing defensible results that can withstand peer review and challenges by organizations with opposing interests.

5.2.3. The Office of Nuclear Safety Research will perform an initial prioritization of suggested research projects, and develop informational scoping packages for each identified safety research issue/need/problem. Each informational package will

fully describe: the safety issue/problem to be studied; the possible research envisioned to address the issue; the expected schedule to complete the task; the expected cost to perform the research task; and, the expected benefit to DOE for conducting the research and resolving the safety issue.

5.2.4. A Nuclear Safety Research Review Panel established by the Office of Nuclear Safety Research will meet periodically to review, concur, and/or comment on the prioritization of potential research projects performed by the Office of Nuclear Safety Research staff. The Committee/Panel will formalize its recommendations in its meeting minutes.

5.2.5. The Office of Nuclear Safety Research will incorporate or resolve panel comments.

### **5.3. Development and Approval of Annual Nuclear Safety Research Plan**

5.3.1. Based on the prioritization of research projects noted above, the Office of Nuclear Safety Research will draft an annual nuclear safety research plan for the upcoming year.

5.3.2. The Office of Nuclear Safety Research will obtain both the NA and ESE Central Technical Authorities (CTA) comments and concurrence on the plan.

5.3.3. Upon concurrence by the CTAs, the Assistant Secretary for the Office of Environment, Safety and Health will approve the annual nuclear safety research plan, including the proposed budget for the research.

## **6. REFERENCES**

*DOE Implementation Plan to Improve Oversight of Nuclear Operations (in response to Defense Nuclear Facilities Safety Board Recommendation 2004-1)*, Rev. 1, June 2005

DOE Standard Procedure, EH-3x-SP-02, *Surveying and Cataloging Nuclear Safety Research*

DOE Standard Procedure, EH-3x-SP-03, *Managing Contracted Nuclear Safety Research Projects*

DOE Standard Procedure, EH-3x-SP-04, *Disseminating Nuclear Safety Research Results*

## **7. DEFINITIONS**

None.

## **8. ATTACHMENTS**

Research request form for recommending nuclear safety issues and research to the Office of Nuclear Safety Research.

**Nuclear Safety Research Request Form – for submission to the DOE/EH Office of Nuclear Safety Research.**

Topic (or title) of nuclear safety research:

Recommender of research (name and organization):

Nuclear safety issue:

Applicability of issue (estimate range of DOE nuclear operations and facilities to which the issue applies):

Significance and characterization of issue (For example: Does issue concern potential high-consequence accidents? New hazards not currently evaluated correctly? Does it reduce uncertainties in known accident scenarios?):

Proposed scope of research to address issue:

Expected results from research (Testing and/or analyses? How many tests? Methodology development? New/modified software?)

Previous research (if any) that proposed research is based on, or will be similar to:

Estimated schedule for completion of research:

Estimated cost of research: